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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/618,741	07/15/2003	Geon-Hyoung Lee	Q75363	7254
23373 7590 06/04/2007 SUGHRUE MION, PLLC 2100 PENNSYLVANIA AVENUE, N.W. SUITE 800 WASHINGTON, DC 20037			EXAMINER WOZNIAK, JAMES S	
			ART UNIT 2626	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/618,741

Applicant(s)

LEE, GEON-HYOUNG

Examiner

James S. Wozniak

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. **Claims 1-28** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The terms "large" and "small" and in claims 1, 3, 7, 9, 13, 15, 19, 21, and 25-28 is a relative term which renders the claim indefinite. The terms "large" and "small" are not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. Thus, the use of the terms "large" and "small" renders the values that they describe indefinite.

The dependent claims fail to overcome the above rejection with respect to the independent claims, and thus, are also rejected under 35 U.S.C. 112, second paragraph for being indefinite.

Claim Rejections - 35 USC § 101

2. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

3. **Claims 1-28** are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claims 1 and 3 are drawn to a method describing a data algorithm for determining pitch. In order for a claimed invention to be considered statutory under 35 U.S.C. 101, it must be useful and accomplish a practical application. That is, it must produce a “useful, concrete and tangible result” (*State Street, 149 F.3d at 1373-74, 47 USPQ2d at 1601-02*). In the present case, the final result of Claims 1 and 3 only refers an abstract calculated pitch result and not a tangible output resulting from applying the calculated pitch to a specific practical application (*such as speech coding, recognition, etc.*). Moreover, it is worth noting that the specification does not appear to describe a tangible output that can be achieved from the pitch calculation algorithm nor does the specification describe how the claimed algorithm can be applied to a practical application. As such, claims 1 and 3 are directed to non-statutory subject matter. The dependent claims fail to overcome the 35 U.S.C. 101 rejection directed towards independent claims 1 and 3, and thus, are also directed to non-statutory subject matter.

Claims 7 and 9 are drawn to a method describing a data algorithm for determining a correlation coefficient. In order for a claimed invention to be considered statutory under 35 U.S.C. 101, it must be useful and accomplish a practical application. That is, it must produce a “useful, concrete and tangible result” (*State Street, 149 F.3d at 1373-74, 47 USPQ2d at 1601-02*). In the present case, the final result of Claims 7 and 9 only refers an abstract calculated correlation coefficient result and not a tangible output resulting from applying the calculated correlation coefficient to a specific practical application (*such as speech coding, recognition, etc.*). Moreover, it is worth noting that the specification does not appear to describe a tangible

output that can be achieved from the correlation coefficient calculation algorithm nor does the specification describe how the claimed algorithm can be applied to a practical application. As such, claims 7 and 9 are directed to non-statutory subject matter. The dependent claims fail to overcome the 35 U.S.C. 101 rejection directed towards independent claims 7 and 9, and thus, are also directed to non-statutory subject matter.

Claims 13 and 15 are drawn to a system executing a data algorithm for determining pitch. In order for a claimed invention to be considered statutory under 35 U.S.C. 101, it must be useful and accomplish a practical application. That is, it must produce a “useful, concrete and tangible result” (*State Street, 149 F.3d at 1373-74, 47 USPQ2d at 1601-02*). In the present case, the final result of Claim 13 and 15 only refers an abstract calculated pitch result and not a tangible output resulting from applying the calculated pitch to a specific practical application (*such as speech coding, recognition, etc.*). Moreover, it is worth noting that the specification does not appear to describe a tangible output that can be achieved from the pitch calculation algorithm nor does the specification describe how the claimed algorithm can be applied to a practical application. As such, claims 13 and 15 are directed to non-statutory subject matter. The dependent claims fail to overcome the 35 U.S.C. 101 rejection directed towards independent claims 13 and 15, and thus, are also directed to non-statutory subject matter.

Claims 19 and 21 are drawn to a system executing a data algorithm for determining a correlation coefficient. In order for a claimed invention to be considered statutory under 35 U.S.C. 101, it must be useful and accomplish a practical application. That is, it must produce a “useful, concrete and tangible result” (*State Street, 149 F.3d at 1373-74, 47 USPQ2d at 1601-02*). In the present case, the final result of Claims 19 and 21 only refers an abstract calculated

correlation coefficient result and not a tangible output resulting from applying the calculated correlation coefficient to a specific practical application (*such as speech coding, recognition, etc.*). Moreover, it is worth noting that the specification does not appear to describe a tangible output that can be achieved from the correlation coefficient calculation algorithm nor does the specification describe how the claimed algorithm can be applied to a practical application. As such, claims 19 and 21 are directed to non-statutory subject matter. The dependent claims fail to overcome the 35 U.S.C. 101 rejection directed towards independent claims 19 and 21, and thus, are also directed to non-statutory subject matter.

Claims 25-26 are drawn to a program describing a data algorithm for determining pitch. In order for a claimed invention to be considered statutory under 35 U.S.C. 101, it must be useful and accomplish a practical application. That is, it must produce a “useful, concrete and tangible result” (*State Street, 149 F.3d at 1373-74, 47 USPQ2d at 1601-02*). In the present case, the final result of Claims 25-26 only refers an abstract calculated pitch result and not a tangible output resulting from applying the calculated pitch to a specific practical application (*such as speech coding, recognition, etc.*). Moreover, it is worth noting that the specification does not appear to describe a tangible output that can be achieved from the pitch calculation algorithm nor does the specification describe how the claimed algorithm can be applied to a practical application. As such, claims 25-26 are directed to non-statutory subject matter. The dependent claims fail to overcome the 35 U.S.C. 101 rejection directed towards independent claims 25-26, and thus, are also directed to non-statutory subject matter.

Claims 27-28 are drawn to a program describing a data algorithm for determining a correlation coefficient. In order for a claimed invention to be considered statutory under 35

U.S.C. 101, it must be useful and accomplish a practical application. That is, it must produce a “useful, concrete and tangible result” (*State Street*, 149 F.3d at 1373-74, 47 USPQ2d at 1601-02). In the present case, the final result of Claims 27-28 only refers an abstract calculated correlation coefficient result and not a tangible output resulting from applying the calculated correlation coefficient to a specific practical application (*such as speech coding, recognition, etc.*). Moreover, it is worth noting that the specification does not appear to describe a tangible output that can be achieved from the correlation coefficient calculation algorithm nor does the specification describe how the claimed algorithm can be applied to a practical application. As such, claims 27-28 are directed to non-statutory subject matter. The dependent claims fail to overcome the 35 U.S.C. 101 rejection directed towards independent claims 27-28, and thus, are also directed to non-statutory subject matter.

Also, **Claims 25-28** are drawn to a “program” data structure not limited to a tangible computer readable medium and as such is non-statutory subject matter (*carrier waves, see specification, page 28*). See MPEP § 2106.IV. Such claimed data structures do not define any structural and functional interrelationships between the data structure and other claimed aspects of the invention, which permit the data structure's functionality to be realized. See, e.g., *Warmerdam*, 33 F.3d at 1361, 31 USPQ2d at 1760 (claim to a data structure *per se* held nonstatutory). In contrast, a claimed tangible computer readable medium encoded with a data structure defines structural and functional interrelationships between the data structure and the computer software and hardware components which permit the data structure's functionality to be realized, and is thus statutory. In this case, the scope of claims 25-28 is not limited to the recited tangible computer readable mediums disclosed on Page 28 of the specification since it

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includes the aforementioned non-tangible computer readable mediums, and as such is directed to non-statutory subject matter. It is further noted that claims 25-28 are only drawn to a program data structure (see above) and not a method that is performed by a computer when the claimed program steps are executed. For this reason also, claims 25-28 are drawn to non-statutory subject matter.

Conclusion

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

Usa (*U.S. Patent: 5,292,995*)- discloses a method for determining pitch in a musical instrument that uses fuzzy rules.

Obata et al (*U.S. Patent: 5,528,699*)- discloses a recognition device utilizing fuzzy logic membership functions.

Choi (*U.S. Patent: 5,572,629*)- discloses a method for fuzzy logic processing.

Nakato et al (*U.S. Patent: 5,611,019*)- teaches a method for discriminating between speech and non-speech using fuzzy logic.

Simpson (*"Fuzzy Min-Max Neural Networks- Part 1: Classification," 1992*)- discloses calculations for the unions and intersections between fuzzy sets.

Saffiotti et al (*"Pitch Determination of Speech Signals: A Fuzzy Fusion Approach," 1997*)- discloses a method for determining pitch by selecting a most probable candidate as a result of two separate fuzzy classification processes.

Boston (*"Effects of Membership Function Parameters on the Performance of a Fuzzy Signal Detector," 1997*)- discloses a method for calculating membership functions for large and small values and the intersection between the resulting sets (*see equations 3.5*).


Chiang et al (*"Correlation of Fuzzy Sets," 1999*)- discloses an algorithm for calculating a correlation coefficient for fuzzy data.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to James S. Wozniak whose telephone number is (571) 272-7632. The examiner can normally be reached on M-Th, 7:30-5:00, F, 7:30-4, Off Alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Edouard can be reached at (571) 272-7603. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

James S. Wozniak
5/4/2007


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